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ABSTRACT

Two studies are described which were conducted at the University of Kansas Center for Research on the Influence of Television on Children to evaluate the effects of form and content independently on the social behavior of young children. In both studies, preschool children were observed during an unstructured play session in a laboratory room before and after a treatment consisting of presentation of a television sequence representing a selection from several different types of form and content. Findings suggest that arousing form can lead to an increased aggression, even without the modeling of violent content. Both form and content can influence arousal, and both can serve as models for behavior. Arousal both enhances attention to the program and enhances the likelihood that its form, content, and other situational cues present at the time of viewing will be responded to by the child viewer. It is suggested that arousal in deliberate and moderate dosages can be put to work to facilitate the communication of educational and prosocial content and behavior. (JEG)

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The Influences of Formal Features in Children's Television on Attention and Social Behavior

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At the last SRCD, in New Orleans in 1977, Aletha and I raised the issue of the role of formal production features in determining children's attention to, comprehension of, and social and cognitive behavior after viewing television programs made with various levels of those features. Our paper was appropriately entitled, "Modeling the Medium," because we took the position that one major effect of formal features would be their functioning as models for observational learning and imitation. We contrasted satiation theory, of which the largely unsupported catharsis model of television violence is an example, with imitation theory, by which one might expect certain formal features of television, like pace or action level to be mirrored in children's post-viewing behavior. We left the door open for a third possibility: that of arousal theory, a derivative of Drive theory that carefully separates arousing stimuli as motivators and energizers of response from situational cues as selectors and directors of response.

Today, our story concerns our uneven and sometimes inelegant, but clearly discernable movement toward some form of arousal theory as offering the most potential to explain how the form of the medium exerts its influence on child viewers. And in moving in that direction we have learned some important practical implications as well as changing our theoretical perspective. Our contribution today is on the forms of TV and their influences on social behavior of young television viewers.

To begin with, form and content of television are by no means independent of one another. The conventions of production, script-writing, and editing assure that when the story to be told in a television drama is known, even

if it is just a cartoon made for children, certain formal features are more appropriate than others for making a program out of it, depending upon the content of the story. Because of this natural and ecological confounding of form and content, it is possible that previous research findings concerning the effects of violent vs. prosocial TV content on related social behaviors in young viewers could have been due in part to the form, rather than the content, of those programs.

If we can separate the effects of form from those of content, some important practical implications for both commercial and educational television for children will result. Specifically, if salient formal features are primarily responsible for drawing child viewers and maintaining their interest and attention, as found by Anderson, but violent content is implicated as the main cause of aggressive behavioral reactions, then commercial producers might be able to reduce the amount of violent content in children's programs without losing any competitive advantage in audience ratings, a state of affairs which they extol, but have made little progress toward achieving. Conversely, if salient formal features are what most attract and hold young audiences, then the perennial low audience ratings of the very best educational and prosocial programs might be sharply increased by utilization of more salient forms without compromising content. In many respects that is just what Children's Television Workshop has been doing well for the past ten years.

Like many others, we have been tempted to give attentional processes the central role in our thinking about this problem. We have thought, "Salient formal features arouse attention in varying degrees, which in turn determines

the degree to which the viewer is exposed to the content, which finally determines the opportunity that content has to influence his understanding and his social behavior." The trouble with that view is that while formal features do indeed influence attention, especially in younger and less experienced viewers, the measured visual attentiveness of the viewer is not related to post-viewing social behavior in our work so far. Beyond a minimum level of attention needed to give the viewer some contact with the program content, further variability in attention is a consequence of form and powerful content, but not a mediator of that content's influence on subsequent social behavior.

Separate and specific effects of form and content can be predicted from an alternate model based on observational learning theory applied separately to form and content. According to that model, the behavioral effects of television are largely due to imitation by the viewer of particular types of content -- aggressive content should lead to aggressive behavior; prosocial content to prosocial behavior, as has often been demonstrated. Formal features might lead to imitation of form. High action might lead to enhanced motoric activity level, while high pace might shorten attention span and increase rate of shifting from one activity to another. Clearly the effects of formal features should be different from those of content, and there are at least some data to support the imitation of form, most notably Salomon's field demonstration that watching the relatively high paced Sesame Street programs reduced task persistence over time (though Anderson's shorter-term lab study failed to confirm the finding).

General arousal theory, by contrast, yields a different model with

contrasting predictions. According to that model both exciting content and salient formal features contribute to the same internal state of generalized arousal. This arousal is, by itself, a fairly non-specific activator of behavior. That is, it increases the likelihood and intensity of some behavior, but does not provide selective direction for what behavior. Instead the specific content of the behavior is determined jointly by the individual's predispositions, habits, set, and expectations on the one hand, and the immediately present environmental cues on the other. Hence the arousal model leads to the prediction that a wide range of behavior might be stimulated by television content or form or both. Moreover content or form can serve as immediate environmental cues as well as in the capacity of sources of arousal, and the model therefore cannot offer the simplicity of segregating the effects of form to arousal and those of content to cueing of behavior.

In more practical terms, the principal difference between observational learning theory and arousal theory is that the latter leads to a prediction that both form and content of television can stimulate behavior that is quite different from what has been observed in either the form or the content of the program. There is some support for this approach in studies of adults. Erotic content of a nonaggressive kind in films leads to as much or more post-viewing aggression than does violent content (Tannenbaum, 1972; Zillman, 1974). The same source reports a study by Zillman where humorous content devoid of hostility can nevertheless arouse aggressive behavior. In yet another study Tannenbaum (1972) showed that violent content could increase the incidence of prosocial behavior when the stimulus situation contained strong prosocial cues.

But the gut-stirring response resulting from exciting content is not the only way we are aroused by television. Another is the cognitive arousal that results from formal complexity (pace, variability, unfamiliarity, and the like) and our cognitive efforts to perceive, organize, and reduce it to clearly comprehensible messages. As Krull and Watt have shown, in a study comparing the effects of complexity of form with violence of content, complexity (like violence) can produce states of measureable physiological arousal in the viewer. In another study by the same investigators, both formal complexity and violent content were independently correlated with program popularity for adolescents.

At the University of Kansas, one of the major activities of our newly formed Center for Research on the Influences of Television on Children, whose acronym is appropriately CRITC, is to evaluate the effects of form and content, independently, on the social behavior of young children. Two studies have been completed, the first by Huston-Stein, Fox, Greer, Watkins, and Whitaker, and the second by Greer, Potts, Wright, and Huston-Stein, while a third, by Potts, Leary, Huston-Stein, and Wright is in progress. The methods and measures in the two completed studies were similar, but the segments of broadcast television presented as stimuli were different. In both studies pairs of preschool children were observed during an unstructured play session in a laboratory room. The toys in the room were selected to facilitate quiet, nonaggressive behavior (e.g., blocks); active, nonaggressive behavior (e.g., a toy airplane); quiet, aggressive behavior (e.g., jungle animal figures); active, aggressive behavior (e.g., a bobo doll); and imaginative play (e.g., small wooden people and animals). All of these materials were available at

the same time so that situational cues for a variety of behaviors were present. If the TV segment stimulated specific behavioral modeling, the necessary props were there. If non-specific arousal occurred, then either the children's own predispositions or particularly salient toys could direct and select play behavior.

In both studies a baseline play session was conducted on one day. On a subsequent day a second play session was conducted, immediately following exposure to an experimental treatment, consisting of presentation of a television sequence representing a selection from several different types of form and content. The elaborate set of toys was not available during TV viewing; instead a set of simple drawing and coloring materials were provided during that part of the viewing session. All play sessions were videotaped and later reliably scored for: (1) aggression, (2) motor activity level, (3)pro-social behavior and positive interaction, and (4) imaginative or fantasy play, both aggressive and nonaggressive.

In the first study animated chlldren's program segments containing different levels of action and violence constituted the treatment conditions. There were three programs: high-action/high-violence, high-action/low-violence, and low-action/low-violence. A control group saw no television. We were at that time unable to find a comparable children's program with low action, but high violence. (That empty cell has since been filled; but subsequent formal-feature analyses of 64 children's programs has shown that non-verbal aggression is almost always portrayed with high levels of action and salient visual and auditory features.)

The results provided more support for arousal theory than for observational learning theory and none of the promising implications we had sought for the improvement of children's television programming. Regardless of the amount of violence, both high action programs were associated with somewhat higher levels of aggression in post-viewing play sessions than either the low-action program or the no-TV control treatment, though this difference was not statistically significant. What was significant was the difference between groups on imaginative play. The pattern was almost the reverse of that for aggression. Children who saw no television, or who saw the low-action/low-violence program increased in imaginative play, while those who saw the high-action/high-violence program declined. The high-action/low-violence group fell in the middle. Parallel trends occurred for aggressive fantasy, which is usually correlated, as it was here, with other fantasy more than with overt aggression.

These findings were partially repeated in the second study using very different content. Commercial ads with different levels of salient formal features distributed uniformly or clustered within a neutral program constituted the experimental treatments. Two sets of food commercials were assembled: one set was high on action, scene and character changes, and most of the visual effects; the other set was low on these features. There was virtually no aggression or violence in the content of either set, and the program in which either set of commercials was placed (an episode from Captain Kangaroo) was both nonaggressive and relatively low in pace and action. The commercials were either dispersed throughout the program at appropriate commercial breaks or were clustered at the beginning and end of the program.

In the play sessions following viewing, children who had seen the high formal feature commercials were more aggressive than were those who had seen the low formal feature commercials. For boys, that difference was most pronounced in the clustered format, but girls showed more pronounced effects of salient form on aggression in the dispersed format. The main finding of increased aggression following a higher rate of salient formal features, action and pace, is consistent with the results of the first study, with the findings of Krull and Watt, and with general arousal theory.

The pattern of results for imaginative play was not like the one found in the first study. Children who had seen high formal feature commercials engaged in more imaginative play than those who had seen low formal feature commercials, when the commercials were clustered at the beginning and end of the program. The four treatments had no effects on either activity level or positive social interaction in the post-viewing play session in either study. Your handout summarizes the results of the two studies. It looks as if the sustained action of the longer program segments produced arousal that amplified the aggressive behavior cues at the expense of fantasy cues in the play situation. Perhaps also the thematic continuity and resolution of plot in the programs left a sense of completed fantasy. The commercials, however, not only provided aggression-stimulating arousal, but contained along with high action the properties of high pace and frequent visual features that may have cued imagination, whereas the high-action programs in the first study were not selected for these features.

By contrast the finding that high formal features stimulated aggressive

behavior was consistent across the diverse contents and formats of the programs and commercials in the two studies. In the first study violent content did not add to the level of aggression found after high action alone. In the second study highly salient formal features led to high levels of aggression, regardless of their distribution in the program and their lack of violent or aggressive content. These findings provide strong support for the notion that arousing form can lead to increased aggression, even without the modeling of violent content. This outcome agrees with Krull and Watt in support of the arousal model, but it fails to provide producers of children's television with a way of arousing interest that avoids the adverse effects of violence -- high hype has some of those same adverse effects too.

The third study, now in progress, will provide a more direct test of arousal theory by factorial combination of three sets of treatments: high vs. low rates of formal features, violent vs. nonviolent content, and a play situation that predominates in cues promoting aggressive vs. cooperative and collaborative play. According to arousal theory, both violent content and formal salience should contribute to high levels of arousal, which should, in turn, lead to increases in either antisocial or prosocial behavior, depending on the situational cues present in the playroom. Observational learning theory, by contrast, makes the prediction that aggressive behavior will be high after a child has seen violent content. Formal salience and situational cues for aggression may increase this effect, but prosocial cues should reduce it.

It appears that no simple causal segregation has yet been or will be easily achieved between the effects of television form and content on young children's

social behavior. Both form and content can influence arousal. Both can serve as models for behavior. Arousal both enhances attention to the program and enhances the likelihood that its form, its content, and other situational cues present at the time of viewing will be responded to by the child viewer. Separating arousal attributable to formal complexity from arousal attributable to exciting content is another difficult research task that lies ahead. But to the extent that producers of commercial and educational programs for children begin to break out of the stereotyped formats and begin to break up the expected correlations between level of action, excitement, or humor achieved and amount of violence, aggression, or hostility shown, then perhaps arousal in more deliberate and moderate doseages can be put to work to facilitate the communication of educational and prosocial content, and behavior. Perhaps the next TV generation will not have such stereotyped expectations of form-content relationships. And perhaps the ratings wars that now sustain the commercial producers of children's programs can be fought in the future over who can produce the most nearly optimal degree of arousal and positive modeling, rather than with ever-increasing hype and violence.

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Summary of Findings in Two Studies of the Effects of Formal Features on Social Behavior

Study 1	Study 2
Type of Television Material	
Animated children's drama	Commercials
Independent Variables	
Action Violence	Formal feature salience Clustered vs. dispersed format
Aggressive Behavior	
High action > low action (trend) High violence = low violence, if both with high action.	High salience > low salience
Imaginative Play (non-aggressive)	
Low action-low violence and no TV High action-low violence > High action-high violence	High salience > low salience, mainly in clustered format.
Aggressive Fantasy	
Similar to non-aggressive fantasy, but trend only.	Similar to non-aggressive fantasy.
Activity Level	
No effects	No effects
Positive Social Interaction	
No effects	No effects